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(72) Inventors; and

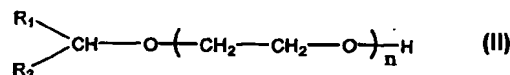
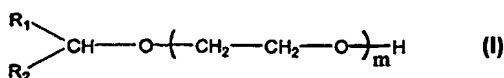
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COMPOUNDS AND COMPOSITIONS FOR USE AS FOAMING OR FROTHING AGENTS IN ORE AND COAL FLOTATION




(57) Abstract: Compounds of formula (I) wherein R_1 and R_2 are each independently C_1 - C_2 alkyl, and m is 1, 2, 3, 4, or 5 and compositions of formula (II) wherein R_1 and R_2 are each independently C_1 - C_4 alkyl, and n is an integer ≥ 0 and wherein the average molar value of n for the total of the compounds of formula (II) in said composition is in the range of (1) to (3) and methods for production thereof.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl. ⁷ : C07C 43/11, 43/10, B03D 1/008		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) ELECTRONIC DATABASES SEE BELOW		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CAS Online databases CA, WPIDS. Substructure search and keywords: froth foam flotation surfactant		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Aldrich Catalogue Handbook of Fine Chemicals 1996-1997. See 2-Isopropoxyethanol, catalogue number 10,789-1.	1
X	US 6051057 A (YATAKE et al.). 18 April, 2000. See example C7.	1-3, 6-12, 34
Y	CA 1336520 A (SHELL CANADA LIMITED). 22 December 1983. See whole document.	1-36
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"B" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>		
Date of the actual completion of the international search 22 January 2004		Date of mailing of the international search report 11 FEB 2004
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer  STUART BARROW Telephone No : (02) 6283 2284

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 0506087 A2 (UNION CARBIDE CHEMICALS AND PLASTICS COMPANY INC.). 30 September 1992. See whole document.	1 2-36
X Y	WO 1997/035095 A1 (BP CHEMICALS LIMITED). 25 September 1997. See page 2, lines 26, 29, 32, 35, and page 3, lines 3, 5, 6.	1 2-36

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2003/001646

Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos : 1 (in part)
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
Compounds of formulae I and II appear to be generally known in the art, as is their use as surfactants. A very large number of documents anticipating claim 1 were found. Because of this, the search has been restricted to the use of the compounds of formula I and II in froth flotation or as a surfactant.
3. ☐ Claims Nos :
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2003/001646

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member		
US	6051057	EP	0878522	JP	11-080639
CA	1336520				
EP	0506087	CA	2064377	JP	5-125391
WO	1997/035095	AU	21017/97	CA	2247334
		ID	16363	NO	984242
				EP	0886718
				US	6173780
					END OF ANNEX